

What is Claimed:

1. A method for removing particles on semiconductor wafers, comprising the steps of:  
performing a first cleaning process in which semiconductor wafers are cleaned for a prescribed time by immersing them in a first cleaning solution consisting of ultra-pure water containing a prescribed quantity of ozone in a first cleaning tank; and  
performing a second cleaning process in which said semiconductor wafers are cleaned for a prescribed time by immersing them in a second cleaning solution consisting of ultra-pure water containing a prescribed quantity of hydrogen in a second cleaning tank, wherein ultrasonic waves are supplied to said second cleaning solution in said second process.
2. A method for removing particles on semiconductor wafers as described in claim 1, further comprising the step of, between said first cleaning process and said second cleaning process, performing a third cleaning process in which said semiconductor wafers are cleaned for a prescribed time by immersing them in a third cleaning solution consisting of ultra-pure water in a third cleaning tank.
3. A method for removing particles on semiconductor wafers as described in claim 1, further comprising the step of, after said second cleaning process, performing a fourth cleaning process in which said semiconductor wafers are cleaned for a prescribed time by immersing them in a fourth cleaning solution consisting of HF mixed solution in a fourth cleaning tank.
4. A method for removing particles on semiconductor wafers as described in claim 3, further comprising the step of, before said fourth cleaning process, performing a fifth cleaning process in which said semiconductor wafers are cleaned for a prescribed time by immersing them in a fifth cleaning solution consisting of ultra-pure water in a fifth cleaning tank.
5. A method for removing particles on semiconductor wafers as described in claim 1, wherein an in-solution concentration of ozone in said first cleaning solution is in the range 2 ppm to 20 ppm.
6. A method for removing particles on semiconductor wafers as described in claim 1, wherein first cleaning solution contains hydrochloric acid in an in-solution concentration in the range 1 ppm to 500 ppm.

7. A method for removing particles on semiconductor wafers as described in claim 1, wherein the in-solution concentration of the hydrogen in said second cleaning solution is in the range 0.3 ppm to 0.8 ppm.

8. A method for removing particles on semiconductor wafers as described in claim 1, wherein the prescribed time in said first and second cleaning processes is in the range 3 to 20 minutes.

9. A device for removing particles on semiconductor wafers, comprising:

- a first cleaning tank filled with a first cleaning solution consisting of ultra-pure water containing a prescribed quantity of ozone;
- a second cleaning tank filled with a second cleaning solution consisting of ultra-pure water containing a prescribed quantity of hydrogen;
- an ultrasonic wave supply means for supplying ultrasonic waves to said second cleaning solution in said second cleaning tank; and
- a control means that controls the conveyance so as to immerse the semiconductor wafers in said first cleaning solution in said first cleaning tank, after a prescribed time remove said semiconductor wafers from said first cleaning solution and immerse them in said second cleaning solution in said second cleaning, and after a prescribed time remove said semiconductor wafers from said second cleaning solution.